

CLAIMS:

1. An electronic circuit topology (1) for driving a predominantly capacitive load (2), where a pulsed electrical power supply is used, with a primary circuit with several components, a secondary circuit with or connected to a predominantly capacitive load (2), and a transformer device (4) with a primary side (TX1a) and a secondary side (TX1b), connecting the primary circuit with the secondary circuit, the primary circuit components comprise: - a source device (3) supplying power via the transformer device (4) for operating the predominantly capacitive load (2), - a drain device (5) for absorbing at least a part of said power, which is reflected back from the predominantly capacitive load (2) during operation, and - a switching device (6) for switching a current on the primary side, - the transformer device (4) is of a transformer type with a gap for transforming an input voltage-current-signal on the primary side (TX1a) to a suitable output voltage-current-signal for supplying the predominantly capacitive load (2) on the secondary side (TX1b), wherein the source device (3) is in serial connection with the transformer device (4), the drain device (5), and the switching device (6), whereby the transformer device (4) being connected to the predominantly capacitive load (2) comprises means for functioning as a resonant tank circuit, as a transformer device (4) in forward mode, and as a transformer device (4) in flyback mode, so that a single-ended forward-flyback circuit for driving predominantly capacitive loads (2) with pulse-shaped wave forms is achieved.
2. Electronic circuit topology (1) according to claim 1, wherein the means comprises at least one transformer unit (TX1) selected from the group of real transformers and at least one second inductive unit (L2) on the secondary side (TX1b), whereby the second inductive unit (L2) can be represented by the leakage induction of the real transformer, so that a resonant tank circuit is achieved.

3. Electronic circuit topology (1) according to claims 1 or 2, wherein the second inductive unit (L2) on the second side (TX1b) of the transformer device (4) is connected in series with the predominantly capacitive load (2), so that the transformer devices leakage induction on the second side (TX1b) of the transformer device (4) makes up a series resonant tank circuit with the capacitance of the predominantly capacitive load (2) and the cabling.
4. Electronic circuit topology (1) according to one of the prior claims 1 to 3, wherein a first inductive unit (L1) located on the primary side (TX1a) is parallel to the transformer unit (TX1), whereby the first inductive unit (L1) is realized by the air gap of said real transformer.
5. Electronic circuit topology (1) according to one of the prior claims 1 to 4, wherein the primary side (TX1a) of the transformer device (4) is connected in series with the source device (3), the drain device (5) and/or the switching device (6).
6. Electronic circuit topology (1) according to one of the prior claims 1 to 5, wherein the drain device (5) comprises a power absorber unit (V2), a capacitance unit (C1), and a diode (D1) for returning power to the supply device (3) via an external down-converter.
7. Electronic circuit topology (1) according to one of the prior claims 1 to 6, wherein the switching device (6) comprises a control unit (V3) for generating a pulse-shaped signal, a switching unit (S1) for switching the current flowing through the primary side (TX1a) of the transformer device (4) and a diode unit (D2).
8. Electronic circuit topology (1) according to one of the prior claims 1 to 7, wherein the diode (D2) is parallel to the switching unit (S1).

9. Electronic circuit topology (1) according to one of the prior claims 1 to 8, wherein the predominantly capacitive load (2) is realized by at least one gas discharge lamp based on a dielectric barrier discharge lamp (La1) for generating light waves, preferably UV-light waves.

5

10. Electronic circuit topology (1) according to one of the prior claims 1 to 9, wherein the dielectric discharge lamp (La1) has a power being preferably in the range from $> 0 \text{ W}$ to $\leq 20,000 \text{ W}$, more preferably from $\geq 500 \text{ W}$ to $\leq 10,000 \text{ W}$, and most preferably from $\geq 1,000 \text{ W}$ to $\leq 5,000 \text{ W}$, most preferably the power is about 3,000 W and the discharge lamp produces light having a wave length preferably being in the range from $\geq 100 \text{ nm}$ to $\leq 380 \text{ nm}$, more preferably from $\geq 180 \text{ nm}$ to $\leq 320 \text{ nm}$, and most preferably from $\geq 200 \text{ nm}$ to $\leq 300 \text{ nm}$.